-----Portland Harbor Remedial Investigation Comment Tables

Below are two tables to use for recording your comments on the Portland Harbor Remedial Investigation (RI) report.

- ***Table 1, Comments on Specific Sections or Discussions***, is for specific changes or clarifications to specific elements of the RI – sections, figures, maps, or tables – needed to make these elements correct, consistent, and/or technically appropriate for inclusion in the final RI.
- ***Table 2, General Comments***, is for you to record general questions or issues that concern multiple sections or the report as a whole.

Please follow the instructions given with each table to make the review and finalization of your comments as efficient as possible.

When you have recorded your comments, please return this entire document file to Section Leads. Copy Chip and Eric.

Thanks in advance for your cooperation on this large, complex task.

Please enter your name, initials, and organization below:

Name: Matt McClincy (MM), Jim Anderson (JA), Mike Poulsen (MP), Jennifer Peterson (JP), Tom Gainer (TG)

Initials: MJM

Organization: DEQ

Completing Table 1

Please follow these guidelines to help ensure the quick, efficient review and resolution of your comments.

- Unless a comment is *very long*, please use the tables provided to record the comment.
- For *very long* comments (e.g., more than 1 page), you can put the comment in a separate Word file (but be sure to fill out the other table cells). Give this file a short, appropriate filename (e.g., *JK_Tissue_1.doc*), and in the **Comment to LWG** table cell, just say "See JK_Tissue_1.doc." Submit this separate file along with these comment tables.
- Please fill in *all* table cells (Rationale is optional) so we can locate your area of concern quickly and accurately. In particular:
  - **Subsection:** Enter the *lowest level heading* of the discussion that your comment applies to (e.g., "4.17.3.9"). If your comment concerns a figure, map, or table, enter the appropriate ID in this column; e.g., "Table 4-32".
  - **Comment to LWG:** Please make a *direct request for a specific action by LWG* that will make the discussion under consideration clear, correct, consistent, or technically appropriate. Examples:
    - In Table 4-23, fifth row, change "95% UCL or maximum exposure" to "maximum reasonable exposure".
    - Fifth paragraph: explain why no further tissue sampling of bivalves was performed.
  - **Code:** Choose a code from the following list to categorize your comment:

Clarify	Clarify or expand text treatment. Includes adding specific text or data quoted in the comment.
Consis	(Apparent) inconsistency in data or assertions, compared to other portion(s) of the report; in **Comment to LWG**, list other discussion(s) to be reconciled with current one.
Edit	Simple text change (add, delete, correct, change wording) with no discussion required; e.g., "Second paragraph: Add clams to list of species sampled." Could also state specific guidance for revising an entire discussion; e.g.; "Update Tissue sampling discussion with latest clam tissue analysis results."
Issue	Issue that requires discussion to be resolved; list other relevant sections or discussions.

  - **Rationale:** Enter any rationale or background information relevant to the requested change.

Table 1: Comments on Specific Sections or Discussions

Initials	Subsection	Page #	Comment to LWG	Code	Rationale
JA	Ex Summary	ES-6	Add "than in the Navigation Channel" to the end of the sentence in the 1st bullet in the Subsection titled "Extent of Contamination"	Clarify	
JA	Ex Summary	ES-12	The subsection title "Bottom Sediments" is a little unclear. Change to "River-bottom Sediments"	Clarify	
MP	Ex Summary	ES-19 (HH RA CSM)	The breastfeeding pathway applies to all long-term exposure pathways with bioaccumulating chemicals, not just fish ingestion, although the greatest exposure is through fish ingestion. This pathway may best be presented in a footnote.	Edit	
MP	Ex Summary	ES-19 (HH RA CSM)	To assist with clarity, the arrows connecting exposure media could be moved to the left of the boxes to avoid confusion with the arrows going from exposure media to exposure routes.	Clarify	
MP	Ex Summary	ES-20 (end of page)	Add a discussion of Oregon's acceptable cancer risk limit of one in one million for individual carcinogens.	Edit	
MP	Ex Summary	ES-21 (1st & 3rd bullets)	As a summary for the public, it is better to use terms such as "one in a million" instead of 10-6.	Clarify	
MP	Ex Summary	ES-21 (Table)	Including 365d/yr for fish ingestion may be confusing, and should be omitted. The intake rate is covered by	Clarify	

			the meals per month and the exposure duration of meals per month.		
MP	Ex Summary	ES-22 (Eco RA CSM)	To assist with clarity, the arrows connecting exposure media could be moved to the left of the boxes to avoid confusion with the arrows going from exposure media to exposure routes.	Clarify	
MP	Ex Summary	ES-23	Consider replacing the term "organism-level" with a less technical term such as "individual". Include a discussion of protecting individuals of T&E species.	Clarify	
JA	Section 3.1.3	3-5, 1st full paragraph	The LWG should check with the USACOE to get an updated more complete list of PH facilities that plan to conduct maintenance dredging in the next several years. Two of these facilities include Kinder Morgan Linnton & Cascade General.	Edit	
TG	Section 3.1.3	3-5	The text should include a discussion of the riverbank, beach, & nearshore sediment removal action (excavation/dredging) Arco completed at their Linnton facility in 2008. Furthermore, the LWG should clarify whether post-removal sediment data adjacent to the Arco site was used throughout the RI & BRAs. Finally, surface sediment panels covering the Arco site (Panel 10.2xA) do not include the sediment Arco	Edit	

			removed in 2008. These panels should be corrected.		
JA	Section 4.2	4-19	The text references DEQ SPINS database. That database has long-ago been replaced by DEQ's Emergency Response Information System database. Revise the referenced text.	Edit	
JA	Section 4.4.6 & Section 11.4.3	4-40 & 11-8	The referenced text states the JSCS program was initiated 1/4/04. DEQ has been working on site discovery & source control since before the 12/00 NPL listing. The Joint Source Control Strategy was finalized 12/05. It's OK for the RI to state the LWG is defining "current overwater spills" as those that occurred since 1/1/04, but it's not correct to say the JSCS program was initiated in 1/1/04.	Edit	
MM	Map 4.4-3		Map needs to be edited to show arsenic groundwater plumes on the Starlink Logistics (Rhone Poulenc) & Arkema sites.	Edit	Former operations at the Starlink facility included formulation of arsenicals that have impacted groundwater. Elevated arsenic concentrations appear to extend from the Starlink source area to the river. Arkema Lot 2 has a local arsenic plume that may be associated with elevated pH.
JA	Map 4.4-3		Map needs to be edited to shown manganese plume at the Evraz Oregon Steel Mills site.	Edit	Site data clearly show elevated manganese in groundwater at the site. However, EOSM argues these elevated concentrations dramatically drop as the plume approaches the river likely due to Eh/pH changes.

MM	Map 4.4-e		Map needs to be edited to show the furan groundwater plume on Arkema Lot 4.	Edit	
MM	Map 4.4-f		Map needs to be edited to show the VOC groundwater plume present at the Starlink source area extending to the river. Approximate plume boundaries are similar to that shown for the SVOC Starlink plume on map 4.4-g.	Edit	
MM	Map 4.4-f		The VOC plume on the Arkema site should be extended northward (downstream) to at least the Arkema Lor2/Lot3 boundary.	Edit	
JA	Table 4.2-2		Change “H-a” & “C-a” in Riverbank Erosion Pathway column at the Alder Creek Lumber Co site to “H-c” & “C-c”.	Edit	We’re not aware of conclusive information supporting the LWG’s pathway determination.
JA	Table 4.2-2		Change “C-a” in Overwater Pathway column at the ARCO site to “N/A” or “C-c”.	Edit	We’re not aware of any recent overwater releases that support “C-a”.
JA	Table 4.2-2		Change “Y” to “N” in NAPL column at the Burgard Industrial Park-Noncontiguous Properties site.	Edit	We’re not aware of any supporting information.
JA	Table 4.2-2		Change “Y” to “N” in NAPL column at the Burgard Ind Park-NW Pipe site.	Edit	We’re not aware of any supporting information.
JA	Table 4.2-2		Change “C-c” to “C-d” in both the Groundwater Pathway column & the Riverbank Erosion Pathway column at the City of Portland BES site.	Edit	DEQ recently closed this site with an NFA.

JA	Table 4.2-2		Change “Y” to “N” in NAPL column at the Consolidated Metco site.	Edit	We’re not aware of any supporting information.
JA	Table 4.2-2		Change “C-a” in Overwater Pathway column at the Exxon-Mobile site to “N/A” or “C-c”.	Edit	We’re not aware of any recent overwater releases that support “C-a”.
JA	Table 4.2-2		Change “C-a” in Overwater Pathway column at the Foss Maritime/Brix Marine site to “N/A” or “C-c”. Change “Y” to “N” in NAPL column at the Foss site.	Edit	We’re not aware of any recent overwater releases that support “C-a”.
JA	Table 4.2-2		Change “Y” to “N” in NAPL column at the Front Ave LP site.	Edit	We’re not aware of any supporting information.
JA	Table 4.2-2		Change “C-b” in Overwater Pathway column at the Gasco site to “N/A” or “C-c”.	Edit	We’re not aware of any overwater releases that support “C-b”.
JA	Table 4.2-2		Change “C-c” to “C-d” in Groundwater Pathway column for the Linnton Plywood site. Change “C-b” in Overwater Pathway column at the Linnton Plywood site to “N/A” or “C-c”.	Edit	DEQ recently closed this site with an NFA. We’re not aware of any overwater releases that support “C-b”.
JA	Table 4.2-2		Change “C-a” in Overwater Pathway column at the MarCom South site to “N/A” or “C-d”.	Edit	There are no current overwater activities currently being conducted at the site.
JA	Table 4.2-2		Change “C-c” to “C-d” in Groundwater Pathway column for the McCormick & Baxter site.	Edit	A groundwater remedy has been implemented at the site.
JA	Table 4.2-2		Change ECSI number from “172” to “2642” for the POP- Terminal 4 Auto	Edit	We’re not aware of any overwater releases

			Storage site. Change "C-b" in Overwater Pathway column at the POP site to "N/A" or "C-D".		that support "C-b".
JA	Table 4.2-2		Change "C-d" to "C-c" in the Stormwater column for the Premier Edible Oil site.	Edit	PEO is currently completing a stormwater source control evaluation.
JA	Table 4.2-2		Add text to the Potential Upland and Overwater Source column describing the TCE release & groundwater plume at the Siltronic site. Change "C-d" to C-c" in the Riverbank Erosion column for the Siltronic site	Edit	NWN is completing a source control evaluation for MGP waste at the Siltronic site.
JA	Section 6.1.1.2.1	6-14	In the 2nd full paragraph, the LWG discusses bedload fluxes leave the site in both the main stem of the river & Multnomah Channel. Since the elevation of the bottom of the channel near the confluence with the LWR is higher than bottom of the LWR…, is it reasonable to expect bedload to be carried from the LWR to the channel?	Clarify	
MM	Map 6.1-1		The Arkema facility has an individual NPDES permit which is not identified on this figure.	Edit	
MP	Section 7.1	7-3, last paragraph	We do not see the value of the 95 UCL of the background mean, or how it will be used in evaluating site data. The example provided, comparing the 95 UCL of the site mean with the background 95 UCL, is	Clarify	

			not a standard statistic test.		
MP	Section 7.1	7-4, top of page	The LWG should present hypothesis testing as the preferred method of comparing site data with background data.	Edit	
MP	Section 7.3.2	7-16, 2nd to the last paragraph	ProUCL is able to calculate the upper 95th percentile of a dataset. The exact percentile method used is not specified, & depends on the distribution of the data.	Edit	
MP	Section 7.5.2	7-21	The summary is unclear. The LWG seems to be saying that site data are not different from background data. There seems to be a clear difference in concentrations of chemicals such as PCBs. The LWG's conclusions & resultant actions are unclear.	Clarify	
MP	Section 8-1	8-1, 1st paragraph	The primary objective of the BHHRA is to identify unacceptable risk. Focusing on the highest contribution to risk is a secondary objective more suited to assisting the feasibility study.	Edit	
MP	Section 8-1	8-1, 2nd paragraph	The risk management assumptions used in the BHHRA are standard ones, so the results of the risk assessment should be evaluated in the same manner as at other sites.	Edit	
MP	Section 8-2	8-2	This section could be improved by making a clear distinction between current & potential future exposure scenarios. In some cases the exposure assumptions may be on the high conservative end for current exposure, but the assumptions are not appropriately conservative for potential future exposure	Edit	

MP	Section 8.2	8-4, top paragraph	The statement that only upper-bound percentiles were used implies a high degree of health protectiveness. In fact, the EPA rate of 17.5 g/day (two 8-oz meals per month) is based on the 90th percentile of the general population, which includes non-consumers of fish. The 90th percentile for fish consumers is much higher (200 g/day). EPA used the 17.5 g/day rate to approximate a fish-consuming population that does not include tribal or subsistence fishers. It is not an unreasonable rate. The rate of 142 g/day used by EPA in developing Ambient Water Quality Criteria for subsistence consumers is a high rate, but a typical ingestion rate for subsistence fishers, a population with a high ingestion rate.	Edit	
MP	Section 8.4.2.1	8-6, top paragraph	The UCL should be specified as the UCL on the arithmetic mean to avoid confusion with upper percentiles of the data.	Edit	
MP	Section 8.4.2.1	8-6, 2nd bullet	The exposure duration statement that fish consumption is assumed to occur at the same rate every day of every year is misleading & tends to over emphasize exposure. Fish ingestion rates are annualized rates, recognizing that actual ingestion will not necessarily be daily.	Edit	
MP	Section 8.4.2.1	8-7, 3rd paragraph	Either the comparison to regional risks (20 to 100 times EPA's target concentration) should be removed, or it should be stated that site risks are 60,000 times EPA's target concentration to	Edit	

			present a fair comparison.		
JA	Table 8.4-1		The hypothetical drinking water scenario should be included in Table 8.4-1.	Edit	
MP	Table 8-4.2		For clarity off the more important risks, revise the order to reflect the magnitude of risk, highest risks first. The order from left to right should be fish, shellfish, sediment, beach, & surface water.	Edit	
JA	Section 10.1.3.1	10-9, 3rd bullet	TPH should be added to the list of COIs for manufactured gas production.	Edit	
JA	Section 10.1.3.1	10-10, 2nd bullet	Phthalates should be added to the list of COIs for ship building	Edit	
MP	Section 10.1.5.1	10-24, 2nd paragraph	EPA concluded that using dry suits is not necessarily "standard practice". Remove the word "standard" in the last sentence.	Edit	
MP	Section 10.1.5.1	10-24, 4th paragraph	EPA has information indicating that shellfish consumption occurs in the sturdy area. In addition, this is a potential future exposure pathway. Revise text.	Edit	
JA	Section 10.2.5.1	10-25	Direct exposure to groundwater seeps was listed as one of potentially complete exposure pathway in the BHHRA (6 bullets on pages 10-24 & 10-25). However, exposure to groundwater seeps was not discussed along with the other 5 exposure pathways.	Edit	
MP	Section 10.1.5.1.5	10-26, top paragraph	Harvest of Asian clams may be illegal, but it is known to occur, & collection of other clams is a potential future exposure concern.	Edit	
MP	Section	10-26	The BHHRA summary states that fish ingestion pathway risks are greater than	Edit	

	10.1.5.1.6		10E-4 for cancer & HQ of 1 for noncancer for both site risks & regional risks. This implies there is little difference between site risks & regional risks. If regional risks are mentioned, there needs to be a clear statement of hw high risks are relative to regional risks.		
MP/JA	Section 10.1.5.2	10-28, last full paragraph	The referenced text implies that PCBs are essentially the only important COC for eco risk.	Clarify	
JA	Section 10.1.5.2	10-29, top paragraph	The SPI is a useful tool, but it should not be thought to be an adequate tool to complete a benthic community survey. The conclusion LWG makes from the SPI information should be qualified.	Edit	
JA	10.2.4.3	10-64, top paragraph	It is not clear how the LWG considers resuspension of PAH-contaminated sediments (particularly from the Gasco site) into surface water load.	Clarify	
MPJA	Panel 10.2-2B		Only a couple of potential sources for TEQ are noted, although it does say it is not a complete inventory. This lack of comprehensiveness is deceptive as to the number of suspected sources such as Arkema.	Clarify	
MP	Panel 110.2-2C		It seems odd that there are only a few orange results & not red postings. The TEQ levels of concern will vary depending on the scenario, but perhaps the ranges (10-100, 100-1000) are inappropriate to identify harm.	Note	
JA	Section 11.4.3	11-8, last sentence	The referenced text states 22 sites currently have source control decisions	Edit	

			with approved plans for interim or final remediation. The majority of the 22 closed sites were closed on a source control decision based on investigation only…., not remediation. That is, the source control evaluation concluded there wasn't a source &/or significant complete pathway to the river.		

Completing Table 2

This table is for recording general comments that concern entire sections or multiple RI elements (sections, figures, maps, or tables). Please state as specifically as you can what your concern is and what needs to occur to resolve it.

Table 2: General Comments

Initials	Section	Comment
JA	Entire report	The LWG's draft RI/BRA report is a very comprehensive & well-written document. The report incorporates a huge amount of effort, & the LWG should be commended for that effort. DEQ thinks it's important that the EPA Team review the report for completeness & accuracy. However, DEQ thinks it's also important that we all agree that the goal of our review & the LWG's subsequent response is 2-fold: 1) to get the RI/BRA report into a form where we can make sound decisions to move the Portland Harbor project forward; & 2) create a final document (a revised report, amendments to the report, etc) for the public record that clearly shows what was done & the basis for the decisions we're making.
JA	4.4.3, page 4-39	The LWG describes a number of potential disagreements with respect to DEQ & LWG conclusions regarding the groundwater evaluation of the current status of a number of sites. DEQ & the LWG are working together to resolve these apparent disconnects between the LWG's RI conclusions & DEQ's Milestone Report conclusions. DEQ & the LWG's goal is to reconcile these differences to support the LWG's FS. We suggest following thru with the current DEQ/LWG effort & not revise the RI report at this time. DEQ did, however, include specific comments regarding Table 4.2-2.
JP	BERA	DEQ wants to emphasize the importance of the EPA team's 12/23/09 preliminary comments regarding both the HHBRA & more importantly the BERA. These comments go beyond the specific set of 10 modifications to the BBHRA & BERA supporting the development of remedial action alternatives as described in the 12/23/09 letter. Some of the remaining most significant issues were issues raised by Jennifer Peterson regarding how dioxins/furans were handled in the BERA & how total TEQ was incorporated. Total TEQ rise is especially important in areas where dioxins, furans, & dioxin-like PCBs occur together to raise the total TEQ risk.
JA/MP	HHBRA	The breastmilk pathway needs to be incorporated into a revised HH BRA or addendum to the report. DEQ is currently finalizing a revision to our Human Health Risk Assessment Guidance that incorporates this exposure pathway into our risk assessment process. Our revised guidance was developed in conjunction with Oregon Office of Environmental Health Public Heath, ATSDR, & EPA Region 10.

JA	Section 6.1.6.1.1	**This a question for EPA, & not necessary a comment to the LWG.** In the referenced section, the LWG describes how they estimated a pore water concentration in each surface & subsurface sediment sample for advective loading analysis. I understand EPA wants to apply Water Quality Standards & drinking water standards as ARARs in pore water at Portland Harbor, but only at sites with empirical TZW data. If we're applying these ARARs to pore water, why aren't we screening these estimated pore water values?